

Appl. No. 10/590,684  
Amendment dated December 16, 2009  
Reply to Office Action mailed September 16, 2009

**In the Specification:**

Please replace the paragraph beginning at page 1, line 12, with the following amended paragraph:

The passenger boarding bridge ~~as a kind of equipments~~ is used in airports and is very popular due to its convenience and security. The boarding bridge assists ~~the~~a passenger when the passenger is boarding~~to go aboard~~ an airplane directly from a terminal building. At present, many kinds of passenger boarding bridges are disclosed, such as in Chinese patent No. ZL95226673.3, ZL00258374.7 and American U.S. Pat. No. US5855035. Conventionally, there are two manners for supporting a beam of a boarding bridge, which is respectively named a single-point supporting and a double-point supporting. With reference to FIG. 1, a passenger boarding bridge 100 in so-called single-point supporting manner is disclosed in Chinese Patent ZL00258374.7, which comprises a rotunda connected to a terminal (not shown), a tunnel 101 which can be retracted or extended to change its length, elevation system used for adjusting the height of the tunnel 101, and a wheel mechanism 102 for supporting the tunnel 101 through the elevation system etc. The wheel mechanism 102 is provided with two wheels attached respectively to both ends of a beam. A bearing plate is substantially located in the center of the beam and used for supporting the elevation system. However, the bridge 100 ~~according to the manner of supporting~~ has poor stability, as the tunnel 101 ~~are often wobbling~~wobbles

when it carries the passengers or when the wheel mechanism 102 is driven to move or turn around the bearing plate. Chinese patent ZL95226673.3, as shown in FIG. 2, discloses another bridge 200 with a wheel mechanism 201 for supporting an elevation system 203 which can adjust or control a tunnel 202 to change its height. Now referring to FIG. 2 and FIG. 3, specially, two sets of wheel assembly 204 are attached to both ends of a beam 301 to improve the stability of the bridge 200, each set of which further comprises a revolving base 302 used for supporting, a hinge support 303 and a hinge shaft 304, and two wheels 305. Importantly, for this kind of bridge 200 in so-called double-supporting manner, a synchronous steering mechanism 307 is necessary in order to drive the wheel assembly 204 at two ends of the beam 301 to move and rotate, or a control system is alternatively utilized to drive the wheel 305 in order to accomplish synchronous moving and/or rotation of the wheel 305. In fact, the conventional boarding bridge 200 according to the double-supporting manner is more stable than before, while it has a complex structure and a low safety, and the control system for synchronous operation of the wheels are even more complicated and expensive. Furthermore, the reliability of the bridge is deduced accordingly as it is unavoidable for the control system to break down.

Appl. No. 10/590,684  
Amendment dated December 16, 2009  
Reply to Office Action mailed September 16, 2009

Please replace the paragraph beginning at page 7, line 24, with the following amended paragraph:

FIG. 2 is a perspective view of another conventional d-boarding bridge, showing that a wheel mechanism supports an elevation system in a manner of double-point supporting;

Please replace the paragraph beginning at page 8, line 18, with the following amended paragraph:

A wheel mechanism as-is one of major components of a passenger boarding bridge and has been improved by the inventors and will be discussed ~~further on~~ in this specification.

Please replace the paragraph beginning at page 8, line 20, with the following amended paragraph:

Referring to FIG. 4, a wheel mechanism 10 according to the first embodiment of the present invention used for passenger boarding bridge (not shown) comprises a beam 2, on which an ~~elevator~~ elevation system for adjusting a tunnel of the bridge (not shown) is provided; a wheel assembly 1 coupled with a bearing assembly to further support the beam 2, being driven by a control system and allowing the bridge 10 to be driven up to

Appl. No. 10/590,684  
Amendment dated December 16, 2009  
Reply to Office Action mailed September 16, 2009

the airplane, and auxiliary supporting units 20 which are further attached to both ends of the beam 2 in order to provide auxiliary support to the beam 2 and the tunnel through the elevation system.

Please replace the paragraph beginning at page 10, line 19, with the following amended paragraph:

However, the surface of ground of an airport is always uneven, the buffer 34 is advantageously utilized to ensure the universal wheel 35 ~~being~~ is supported on the ground at a pre-pressure in order to balance torsion forces due to the slope of the boarding bridge and improve the stability of the boarding bridge. In this case, the pre-pressure at one side of the beam 2 will be a constant value once the boarding bridge is located, but will be changed within a predetermined range when the boarding bridge ~~being~~ is moving.

Please replace the paragraph beginning at page 11, line 2, with the following amended paragraph:

FIGS. 6-7 shows a third embodiment of a pair of auxiliary supporting units 20 which are also provided outside the wheel mechanism 1. Each unit 20 is mounted under one end of the beam 2 in order to support the beam 2, comprising a leg support 3 attached

Appl. No. 10/590,684  
Amendment dated December 16, 2009  
Reply to Office Action mailed September 16, 2009

under the beam 2 and can be driven by the control system to retract and extend, and a foot portion 5 supported on the ground. In this embodiment, the leg support 3 is a power-driven thruster, which has a fixed part 31 mounted under the beam 2 and a moving part 32 connected to the foot portion 5. The foot portion 5 is configured into a supporting seat coupled to the leg support 3 in manner of hinge joint. For example, a hinge 4 may be provided for connecting the supporting seat to the leg support 3. Alternately, the supporting seat 5 may be coupled to the leg support 3 directly.

Please replace the paragraph beginning at page 11, line 18, with the following amended paragraph:

FIGS. 8-10 show a fourth embodiment of an auxiliary support unit 20. The structure of the auxiliary support unit 20 according to the preferred embodiment is substantially as the same as that of the first embodiment except for an angle detector 11 which will be described in detail hereinafter.